Mumbai: City of garbage hits a dead end

In 2011-12, Mumbai alone accounted for 6.11% of the total waste generated daily in India. As its waste piles up, the land-starved city is staring at the big question — where to dump? Our reporters look at options.

Of the 1,27,486tonnes of waste generated daily in India in 2011-12, Mumbai alone accounted for 6.11 per cent. It is estimated that every resident in the metropolis now generates about 630 grams of waste daily, a figure that is expected to touch 1 kg in the coming years. Land-starved that the city is, this leaves its planners with an extremely difficult choice — where to dump?

The predicament, coupled with concerns for high-level emissions of greenhouse gases from the city's unsanitary landfills and the growth of bacteria that cause life-threatening diseases, has fuelled the prospects of the waste management industry, which has yet to firmly establish itself in India. Estimates suggest that the Rs 60,000-crore industry has the potential to grow at 10-15 per cent a year. Foretelling the latent possibilities of this business, **Dr Amiya Sahu**, president of National Solid Waste Association of India (NSWAI) and member of the Planning Commission's task force for Solid Waste Management (SWM), says, "Garbage is money, if handled properly."

While the quantum of garbage generated by the city is only expected to increase, theinfrastructure necessary to manage it is still not in place. The Brihanmumbai MunicipalCorporation (BMC) has ambitious plans to process and manage the 7,000-8,000 metric tonnes (MT) of waste generated daily. But since the formulation of the Municipal Solid Waste (MSW) Rules (management and handling) in 2000, most of these ideas have either failed to take off the drawing board or are poorly implemented today.

CURRENT SITUATION

Environmentalists believe the BMC's current policies are in violation of MSW Rules, 2000, as the corporation allows compactor trucks to collect mixed waste and fails to penalise buildings that do not segregate waste. In February last year, a circular issued by deputy municipal commissioner (SWM) PrakashPatil stated that by July 2013, the corporation would stop accepting mixed waste and issue legal notices to housing societies that fail to segregate waste at the source.
The big announcement, however, fell flat as the corporation failed to provide vehicles for collecting dry waste from housing societies. Since last year, the corporation has been working on a long-term plan to ensure 100 per cent segregation by March 2015. The plan has yet to be finalised.

Questions have been repeatedly raised over the quality of service provided by the contractors in collection and transportation of waste. Critics say while the BMC has an elaborate system in place for collection and transportation of waste, there are no real-time checks in place to see if the appointed contractors are following specifications. In a major health hazard, conservancy workers involved in collection, transportation and disposal continue to work without wearing the prescribed rubber gloves, face masks, reflector jackets and safety shoes.

The initiative is part of the civic body's attempt to comply with standards set by the Ministry of Urban Development's (MoUD) for urban local bodies to enhance the quality of civic amenities. Apart from effective garbage collection, the civic body will also have to ensure 80 per cent recovery of collected waste through recycling, 100 per cent scientific disposal of municipal solid waste, 100 per cent cost recovery in SWM services and 90 per cent efficiency in collection of SWM charges.

Starting with collection, **Dr. Sahu** says, BMC should first provide the necessary infrastructure to encourage segregation. "If BMC wants to increase segregation of waste, it will first have to invest in more dust bins for Mumbai. Different dust bins for different types of waste should be provided so that residents are publicly educated to segregate wet waste from paper, plastic, glass and metal. Even the community waste bins today are overflowing and unsanitary. If they are better designed, we can use these effectively," says Dr. Sahu.

In early 2013, the corporation had announced plans to acquire 20,000 waste bins that would promote segregation. However, so far, it is yet to float a tender.

While BMC anticipates an increase in the amount of waste generated over the next 20 years, its SWM department claims that through these plans for segregation and waste-processing, the amount of waste that reaches the city's three dumping grounds (currently 7000-8000 MT) will be limited to less than 10,000 MT.

According to **Dr Sahu**, the corporation would be better able to achieve this if it invested in built-in shredders for dry waste vehicles travelling to dumping grounds. "The amount of dry waste that is actually transported to the dumping grounds is half of the vehicle's carrying capacity. It is an absolute waste of fuel and space. If the corporation uses vehicles with built-in shredders, fewer trips will be needed and more waste can be transported, thus saving up onfuel costs and other related expenses," he says.

DUMPING GROUNDS

Mumbai's three dumping grounds in question are Deonar, Mulund and the recently created Kanjurmarg landfill. The Kanjurmarg dumping ground has been stuck in litigation in the Bombay High Court as environmental organisations including the Maharashtra Coastal Zone Management Authority (MCZMA) have alleged illegal dumping on wetlands and coastal regulatory zone (CRZ) areas that fall within the landfill site's area of 141 hectares.

Deonar, along with Mulund landfill, was slated for closure five years ago in 2009. On account of the legal complications with Kanjurmarg, Deonar continues to be overburdened with the bulk of the city's garbage (5,500 MT) being dumped here.

Moreover, while the height of the waste tower at Deonar has reached about 55 metres, as against the 35-metre cap mandated by the Airports Authority of India, none of the dumping grounds have a single waste processing unit despite Mumbai's high generation of waste.

In a futile exercise, the Maharashtra Pollution Control Board (MPCB) has served the two landfills notices for failing to comply with the standards set by MSW Rules, 2000. In fact, for the Mulund landfill, MPCB's sub-regional officer V N Patil has even submitted a proposal for the forfeiture of BMC's bank guarantee for non-compliance of MSW rules.

Activists, however, feel the corporation should engage itself more closely with the landfill management activities.

Dr. Sahu says, “In the long run, the city would benefit better from waste management if the municipality itself owned the plants. In foreign countries such as Sweden and France, where waste-processing technologies are successfully carried out in a big way, the municipality owns the plant. Only if the corporation is in control of these establishments will it understand the nuances of waste management in a city.”

Till these plans take off, Kanjurmarg is the city’s only landfill where construction of a bio-reactor is already under way. Still, Dr Sahu contends that the waste-processing technology does not do much for the garbage that will collect at the landfill site.

“A bio-reactor at Kanjurmarg would merely make the dumping ground a secure landfill as mandated by the 2000 MSW Rules as it is also located away from habitation. The bio-reactor basically ensures the methanisation of bio-degradable waste for fuel purposes. But it does not specifically process waste for energy. Moreover, on account of the terrain of the land which is mainly marshy in nature, effective fuel generation from waste cannot be carried out,” says Dr Sahu. He suggests that for increased production of methane, the corporation could mix sewerage sludge with the wet waste as it will generate better results for producing energy.

THE ROAD AHEAD

Recently, in 2013, the Union Ministry of Environment and Forests (MoEF) brought out a draft revision of the 2000 rules which, though yet to be gazetted, focus on incineration as a method of processing and disposing waste. Encouraged by this, BMC has floated an expression of interest (EOI) to set up a 1000-tonne waste-to-energy (W2E) incineration plant at Deonar. While the EOI received tremendous response with 22 international firms participating in the bids, there is no proof of successful implementation of this processing method in India to date, despite several attempts in various states including the national capital.

“So far, incineration plants only burn waste and have failed to convert this into energy. The plant at Vijayawada in Andhra Pradhesh was the first to be set up, and it has now closed down. Similar plants in Hyderabad and Lucknow have also been shut. In Delhi, there was a plant set up by a Danish company

that eventually failed. Another incineration plant set up there by the Jindal group too has run into problems as it does not have a proper cleaning system, leading to a lot of smoke generation while processing through the furnace," says Dr Sahu.

Dr. Sahu recommends the diversification of waste processing technologies. "If we have different types of waste processors, we can effectively handle different compositions of waste coming from different parts of the city as the demographics in Mumbai are highly varied. We should have a combination of technologies including incineration, pyrolysis, gasification, and biomethanisation," he says.

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